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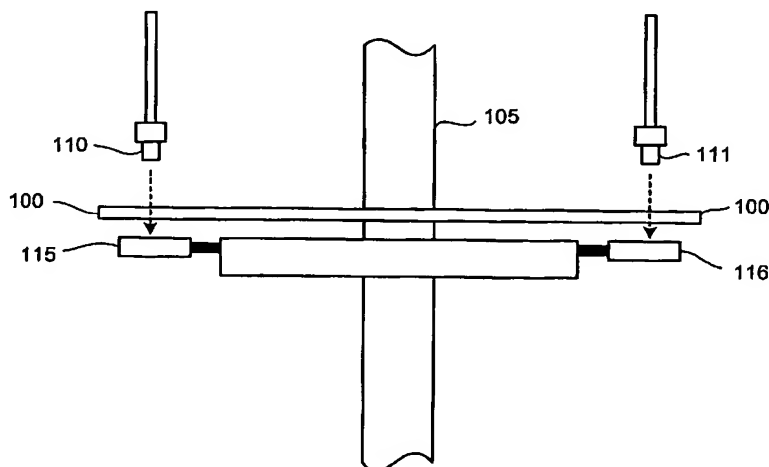
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(54) Title: METHOD AND APPARATUS FOR ABSOLUTE OPTICAL ENCODERS WITH REDUCED SENSITIVITY TO SCALE OR DISK MOUNTING ERRORS



(57) Abstract: An absolute optical encoder apparatus for measuring an absolute position comprises an optical disk or scale element (100) having both incremental and absolute code tracks formed thereon. In the embodiment, a photomitter light source (110, 111) illuminates the tracks onto a CCD area array sensor (115, 116) such that an image is formed from a pixel matrix having of rows and columns. Two detector line rows (410, 420) of the pixel matrix are each read out from the portion of the matrix comprising the incremental and absolute code tracks respectively. Inaccurate mounting of the disk or movement of the scale element can cause fluctuations in the period of the code tracks resulting from the rotation of the disk or movement of the scale element. The mounting inaccuracies are compensated for either by matching the spatial frequency by dynamically changing row of detector line read from the incremental image of the code track or by altering the numerical value of the pattern period used in the Fourier phase algorithm. The absolute position is numerically calculated from the imaged code tracks.

WO 2004/094957 A1



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